

WHAT IS CLAIMED:

1. A system for treating vasculature, comprising:

a first graft component, the first graft component including a self-expanding structure and an inferior end portion;

5 a second graft component configured to be delivered within vasculature separately from the first graft component; and

a delivery catheter, the delivery catheter including a releasing mechanism, a sheath overlaying the releasing mechanism and the first graft component, and a restraining structure that maintains the inferior end portion of the first graft portion
10 in a reduced diameter, the releasing mechanism configured to maintain the self-expanding structure of the first graft component in a compressed configuration after the sheath is withdrawn exposing the self-expanding structures;

wherein the second graft component is configured to be placed about the reduced diameter of the inferior end of the first graft portion.

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2. The system of claim 1, the first graft component further includes a superior end portion, the inferior end portion defining a first limb and a second limb.

20 3. The system of claim 2, the second graft component being configured to mate with one of the first and second limbs.

4. The system of claim 3, the second graft component being configured to anchor to an inside portion of one of the first and second limbs.

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5. The system of claim 3, the second graft component being configured to anchor to an outer circumference of one of the first and second limbs.

6. The system of claim 3, the second graft component including an attachment system affixed to an external circumference of the second graft component.

7. The system of claim 6, the attachment system of the second graft component includes hooks.

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8. The system of claim 1, the first graft component further including a plurality of self-expanding structure affixed thereto.

9. The system of claim 8, wherein at least one self-expanding structure is configured within an interior of the first graft component.

10. The system of claim 8, wherein at least one self-expanding structure is configured within an exterior of the first graft component.

11. The system of claim 8, at least one of the plurality of self-expanding structures include a lumen penetrating member.

12. The system of claim 11, wherein the lumen penetrating member is a hook.

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13. The system of claim 11, at least one of the plurality of self-expanding structures further includes alternating apices and the lumen penetrating member is defined by a V-shaped member interspersed between the alternating apices.

5 14. The system of claim 8, wherein at least one of the plurality of self-expanding structures is placed in a medial portion of the first graft component.

15 15. The system of claim 14, wherein at least one of the plurality of self-expanding structures includes lumen penetrating members attached thereto.

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16. The system of claim 15, wherein at least one of the plurality of self-expanding structures includes alternating apices between which is configured a V-shaped member which hooked terminal ends.

15 17. The system of claim 1, the second graft component including a plurality of self-expanding frames.

18. The system of claim 17, at least one of the self-expanding structures includes a lumen penetrating member.

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19. The system of claim 18, at least one of the self-expanding structures lacking lumen penetrating members.

20. The system of claim 1, further comprising a third graft component.

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21. The system of claim 1, the releasing mechanism further comprising a release wire tab assembly configured to releasably engage a handle of the delivery catheter.

5 22. The system of claim 1, the releasing mechanism further comprising at least one release wire configured to maintain self-expanding structure in a radially compressed condition.

23. The system of claim 1, further comprising a superior capsule
10 assembly configured to receive a superior portion of the first graft component.

24. The system of claim 23, further comprising a support tube operatively connected to the superior capsule, and a superior capsule grip attached to an inferior portion of the support tube.

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25. The system of claim 1, further comprising an inner catheter configured with an inflatable member.

26. The system of claim 1, further comprising an inner catheter grip
20 attached to an inferior portion of the inner catheter.